

tained but 1-100,000 of its weight of sulphuric acid, a drop of a concentrated solution of Nitrate of Baryta still produced a precipitate of sulphate of Baryta, which by heating quickly settled to the bottom in the form of plainly visible white grains, insoluble in acids, and not altered at all by the presence of organic matter, or such others as may be extracted from the soil by acids.

We also know by analyses of Boussingault and of Fresenius, that a potato crop of 10 tons contains

Tuber	10 tons,	containing of Sulph. Acid,	30 lbs.
Top	2 "	" "	10 lbs.
Total amount of Sulphuric Acid			40

If we now take a crop of 10 tons as an average crop per acre, then it is necessary that the soil contains at least 40 lbs. of sulphuric acid (equal to one bushel of plaster of Paris,) if it shall be able to produce the above crop.

We have further to remember that the average weight of one acre of soil, one foot deep, is 3000 tons—6,000,000 lbs.

6,000,000 lbs. of soil ought therefore to contain 40 lbs. of sulphuric acid to produce the average crop of potato, and consequently every part of this mass 1-150,000 of its weight of sulphuric acid.

Or if we dissolve the sulphuric acid in a certain quantity of the above mass, by a solvent of equal weight, the solution obtained will also contain 1-150,000 of sulphuric acid; or by evaporating from it one-third, a solution will be obtained which contains 1-190,000 of sulphuric acid, an amount which can be detected by Nitrate of Baryta, as above stated.

For the purpose of testing a soil for its sufficiency or deficiency in sulphuric acid, it is therefore only necessary to take a certain portion of the prepared solution of the soil to evaporate from it one-third, and then to test with Nitrate of Baryta. If no precipitate occurs after heating the liquid, it is a proof that the soil is deficient in sulphuric acid.

DETERMINATION OF CHLORINE.

For the detection of chlorides, we are also favored with a re-agent which distinguishes itself by its sensibility. Experiments which were made to try its sensibility, have resulted in the observation that in a solution of Chloride of Sodium which contained but 1-100,000 of its weight of Chlorine, a drop of a concentrated solution of nitrate of silver, still produced a precipitate of chloride of silver, which by heating and stirring quickly settled to the bottom in the form of plainly visible white flakes, which after some time when exposed to the light, became blackened; they are easily soluble in ammonia, but not in nitric acid. It could not be found